

## EGS CONFIDENCE TEST EXECUTION COVER SHEET

1. Test ID and Title: EDOS - ASTER GDS Interface Confidence Test - ICT11

2. Test Conductor / Test Lead: Steven War

3. Planned Execution Date: 7/9/97 - 7/10/97

4. Actual Execution Date: \_\_\_\_\_

5. Planned Configuration:

Hardware: ASTER ICC, ASTER SDPS, ADN, JPL, EBnet, P&S, Command Management, T & C Processing, and GDS Equipment

Software: ASTER Software and EDOS S/W

6. "As Run" Configuration:

7. Package items planned for execution:

(List test cases or steps planned for execution, e.g. ICT10.1, ICT10.2 steps 2-5, etc.)

8. Package items actually executed and deviations from currently published procedures.

9. Results

- a. Capabilities successfully demonstrated
- b. Capabilities not successfully demonstrated
- c. Requirements verified
- d. Discrepancy Reports submitted

10. Lessons Learned

## **EDOS - ASTER GDS Interface Confidence Test - ICT11**

### Background Information:

#### Responsibilities:

EDOS provides capabilities for return link data capture, data handling, data distribution, archival data storage, and forward link data handling and interfaces with the ASTER Operations Segment (AOS) Instrument Control Center (ICC) and the ASTER SDPS.

The ASTER ICC provides distributed operations planning and scheduling, generation of instrument command mnemonics, instrument performance monitoring and health and safety analysis, and troubleshooting.

The ASTER SDPS interfaces with EDOS as required to receive the PDS Physical Media Unit Delivery Record, and PDSs which serve as input to the generation of ASTER Science data products.

#### Return Link:

The EDOS return link processing service receives and captures EOS spacecraft return link data transferred from the SN, performs processing for CCSDS communication services protocols, and transfers real time and house keeping playback telemetry data to the ASTER via EBnet.

EDOS sends the ASTER ICC the CODA Reports, SCS Summary Reports, Real-time Path Service EDOS Data Units (EDUs), and Rate Buffered Path Service EDUs.

EDOS sends ASTER instrument data packaged in Production Data Sets to ASTER SDPS on removable physical storage media.

Expedited Data Sets (EDS) are sent electronically to the Goddard DAAC by EDOS while Production Data Sets are sent to the ASTER GDS via removable physical storage media. The Goddard DAAC make the EDSs available to the ASTER SDPS.

Data quality and accounting information and processing status information are provided with the products to the ASTER GDS.

EDOS Archived PDSs are sent to the ASTER SDPS, on request via removable physical storage media.

### Test Objectives:

Ensure EDOS receives ASTER instrument data from the spacecraft via SN, demultiplexes the information, and delivers the information (at nominal and maximum rates) from the EDOS as follows :

Goddard DAAC	EDSs Mission Test Data
ASTER AOS (ICC)	CODA (Rel. V3) SCS Summary Reports (Rel. V3) Real Time Path Service EDUs (Rel. V2) Rate Buffered Path Service EDUs (Rel. V2) Rate Buffered Path Service EDUs - Contingency {Tape} Mission Test Data Operation Management Test Data
ASTER SDPS	ASTER Instrument Data (PDS) - {Tape} Archived PDS {Tape} Mission Test Data Operation Management Test Data Physical Media Unit Delivery Record

Insure the ability for EDOS to receive the following information (at nominal and maximum rates) from:

ASTER SDPS	Physical Media Unit Delivery Letter receipt acknowledgment New Rate Buffered, PDS & EDS File Size Requests
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Additionally, the following failure modes will be tested:

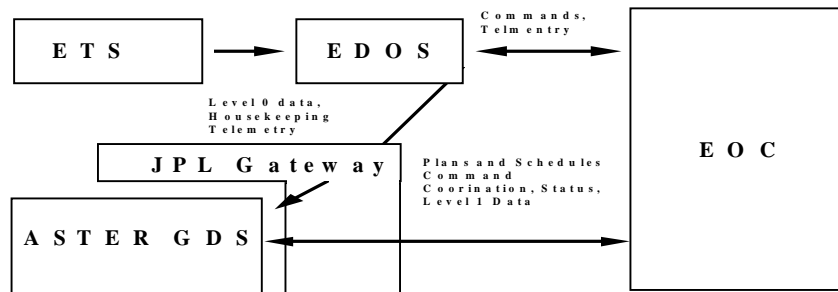
- FTP transmission failures, where the FTP protocol will retransmit the data/message as the level one message accountability.
- Insure that EDOS stores the data when a communication outage occurs.
- When communications are reestablished insure EDOS first processes/transmits the Real-time Path Service EDUs and then the Rate Buffered Path Service EDUs.

Requirements to be Verified:

ASTER-110#B ECS shall have the capability to send and ASTER GDS shall have the capability to receive DARs for the ASTER instrument. DARs shall contain the following information, at a minimum:

- a. Observation number
- b. Experimenter identification
- c. Experimenter address
- d. Investigation identification
- e. Scientific discipline
- f. Observation repetition period
- g. Tolerance in observation time
- h. User priority
- i. Scheduling priority and target of opportunity flag
- j. Descriptive text
- k. Location data expressed in terms of longitude and latitude as earliest start coordinates and latest stop coordinates
- l. Earliest start time
- m. Latest stop time
- n. Minimum coverage required
- o. Maximum coverage desired
- p. Associated product generation request and product distribution request
- q. Pointing angle
- r. Calibration requirements
- s. Coordination requirements
- t. Data transmission requirements
- u. Illumination requirements (day/night)
- v. Specific time of observation
- w. Sun angle
- x. Direct downlink option

Test Configuration:



Note: This figure needs to be updated at a lower level.

#### Participants and Support Requirements:

##### Participants:

- EDOS M&O
- ASTER M&O
- JPL M&O
- EBnet M&O
- ADN M&O
- I&T Test Coordinator

##### Comm:

- Voice: Phone
- SCAMA CNXN to GDS, EDOS, EOC
- Data: EBnet circuits at GSIF, DAACs & GDS

##### Equipment & Software:

##### Hardware:

- ASTER ICC
- ASTER SDPS
- ADN
- JPL
- EBnet
- P&S
- Command Management
- T & C Processing
- GDS Equipment

Software:

ASTER Software  
EDOS S/W

Test Tools: ETS

Test Data:

Description / Characteristics	Source	File/Script & Location
Return Link Data	Spacecraft Simulator	
Real-Time Path Service EDUs	Generated by EDOS	N/A
CODA Report	Generated by EDOS	N/A
SCS Termination	Generated by EDOS	N/A
EDS	Generated by EDOS	N/A
Rate Buffered Path Service EDU	Generated by EDOS	N/A
Rate Buffered Path Service EDU for Contingency Operations	Generated by EDOS	N/A
PDS containing non science Path SDUs	Generated by EDOS	N/A
EDOS Archived PDSs	Generated by EDOS	N/A
Mission Test Data	TBS	
Operations Management Test Data	TBS	
Rate Buffered, PDS & EDS File Sizes	TBS	
Instrument Control Data	ASTER SDPS	
Instrument Operations Data	ASTER SDPS	
Instrument Support Analysis	ASTER SDPS	

References:

GSFC/MO&DSD, 510-ICD-EDOS/ASTER, ICD Between EDOS and ASTER GDS, January 19, 1996.

Test Case Descriptions:

ICT11.1 - SCS #1

The ETS MPS will send Real-Time Telemetry data to EDOS during a Spacecraft Contact Session. EDOS will demultiplex this data using identifying information in the VCDU header. Subsequent processing will use the VCDU-ID fields together with EDOS management information to form SDU, which will in turn be used to form the Path

Service EDU. EDOS will electronically transmit non-science Path Service EDUs as Real - time Path Service EDU to the ICC. The operator at the ICC will ensure the correct data has been received. Every five seconds during the SCS session, EDOS forwards CODA Reports to the ICC. At this point the SCS will be terminated. EDOS completes the SCS Summary Report and transmits it to the ICC. The Housekeeping Telemetry Playback data is provided by EDOS in a rate Buffered Path Service EDU and sent to the ICC via FTP. If the quick look flag is set, EDOS generates EDSs which is electronically sent to GSFC and subsequently transferred to the ASTER SPDS. EDOS also builds PDS from the CCSDS version 1 packets and records these on tapes for delivery to ASTER. Gaps in the Real-Time Telemetry data will be introduced to ensure correct handling. Additional error conditions will be introduced from the MPS.

#### ICT11.2 - SCS #2

The ETS MPS will send Real-Time Telemetry data to EDOS during a Spacecraft Contact Session. EDOS will demultiplex this data using identifying information in the VCDU header. Subsequent processing will use the VCDU-ID fields together with EDOS management information to form SDU, which will in turn be used to form the Path Service EDU. EDOS will electronically transmit non-science Path Service EDUs as Real - time Path Service EDU to the ICC. The operator at the ICC will ensure the correct data has been received. Every five seconds during the SCS session, EDOS forwards CODA Reports to the ICC. At this point the SCS will be terminated. EDOS completes the SCS Summary Report and attempts to transmits it to the ICC. However communications to the ADN has been lost. The Rate Buffered Path Service EDUs are routed through the contingency operations procedure, which basically means they are put on a tape and forwarded to ASTER. If the quick look flag is set, EDOS generates EDSs which is electronically sent to GSFC and subsequently transferred to the ASTER SDPS. EDOS also builds PDS from the CCSDS version 1 packets and records these on tapes for delivery to ASTER. Gaps in the Real-Time Telemetry data will be introduced to ensure correct handling. Additional error conditions will be introduced from the MPS.

#### ICT11.3 - Mission Test Data to Appropriate DAAC, ASTER AOS and ASTER SDPS

The ETS MPS will send Real-Time Telemetry data to EDOS during a Spacecraft Contact Session. EDOS will process this information as described above and will send the Mission Test Data (consisting of Real-time Path Service EDUs and Rate Buffered Path Service EDUs sent electronically to ASTER ICC, EDS(s) sent electronically to the GSFC DAAC and PDS(s) sent on removable physical media to ASTER SDPS). The operator at the ICC will ensure the correct data has been received.

#### ICT11.4 - Operations Management Test Data to ASTER AOS and ASTER SDPS

The ETS MPS will send Real-Time Telemetry data to the EDOS during a Spacecraft Contact Session. EDOS will process the information and generate Operations Management Test Data consisting of CODA and SCS Summary Reports sent electronically to ASTER ICC and PDS Physical Media Unit Delivery Record sent

electronically to ASTER SDPS. All EDOS - ASTER interaction for testing will be in conformance with OA.

Test Procedures:

Test Set-up:

Step	Station	Action	Expected Results	Comments
1.	EOC	Log onto the FOS user workstation and initialize necessary subsystems  Record the system configuration on the execution cover sheet	FOS logical string is configured for test execution	
2.	EOC	Bring up event page		

(rest is TBS)

Test Execution:

**TBS**

ICT11.1 - SCS #1

ICT11.2 - SCS #2

ICT11.3 - Mission Test Data to Appropriate DAAC, ASTER AOS and ASTER SDPS

ICT11.4 - Operations Management Test Data to ASTER AOS and ASTER SDPS

Test Termination:

Step	Station	Action	Expected Results	Comments
1.	EOC	Collect all necessary screen snaps, dumps, etc. needed for post-test analysis and verification		
2.	EOC	Reconfigure the system to pre-test configuration		
3.	EOC	Log off of the FOS user workstation		



